



Incorporating



Past projects >>>

> Abbeywood community school, Bristol

Project overview

Abbeywood Community School, Bristol

Overview

Part of the last government's now scrapped school rebuilding program, Abbeywood School began construction before the coalition's spending review.

As part of the drive towards cleaner public buildings, it was intended from the outset to be an environmentally friendly building, benefitting from the most efficient systems possible, including a stack type natural ventilation system.



Main entrance and lobby

Why natural ventilation?

Natural ventilation, in its simplest state uses no energy whatsoever, powered entirely by natural forces like the wind and heat from the sun.

All climate control is done by adjusting volume control dampers, altering the amount of fresh air drawn in, and stale air taken out.



School and nearby sports facilities

All 32 aqua blue coloured penthouse louvres can clearly be seen

The old post-war building can be seen in the bottom right corner

Components fitted:

- 32** Penthouse louvres, Series PHL
- 60** uPVC Volume control dampers fitted with Belimo modulating actuators
- 1** Custom 4.5m high stack, supporting another penthouse above an adjacent roof

Abbeywood community school

Standard penthouse louvres

Standard features

Bird screen

Prevents birds and other objects penetrating the louvre

Custom finish

Chosen to blend with the sky

Options specified

Two locking doors in each unit

Allowing the routine maintenance of uPVC dampers housed inside

Insulated internal dividing plate

Allows a single penthouse to perform supply and extract at the same time

Insulated single slant roof

Prevents excess noise during rain from entering the classrooms below

Additional cill

Hiding the top of the curb on each penthouse



Abbeywood community school

Standard penthouse louvres

Louvre doors

Suited to all work from one key, maintenance of the uPVC volume control dampers is made possible thanks to two doors fitted to each unit.

Being a fully active portion of the louvre also means the doors never inhibit the air handling abilities of the penthouse.



Whilst being mounted on rustproof stainless steel hinges means long term longevity is assured.

Abbeywood high school

uPVC volume control dampers

Standard features

Ultra high shut off

Independent tests show no leakage below 10Pa; the pressure most likely to be found in natural ventilation installations

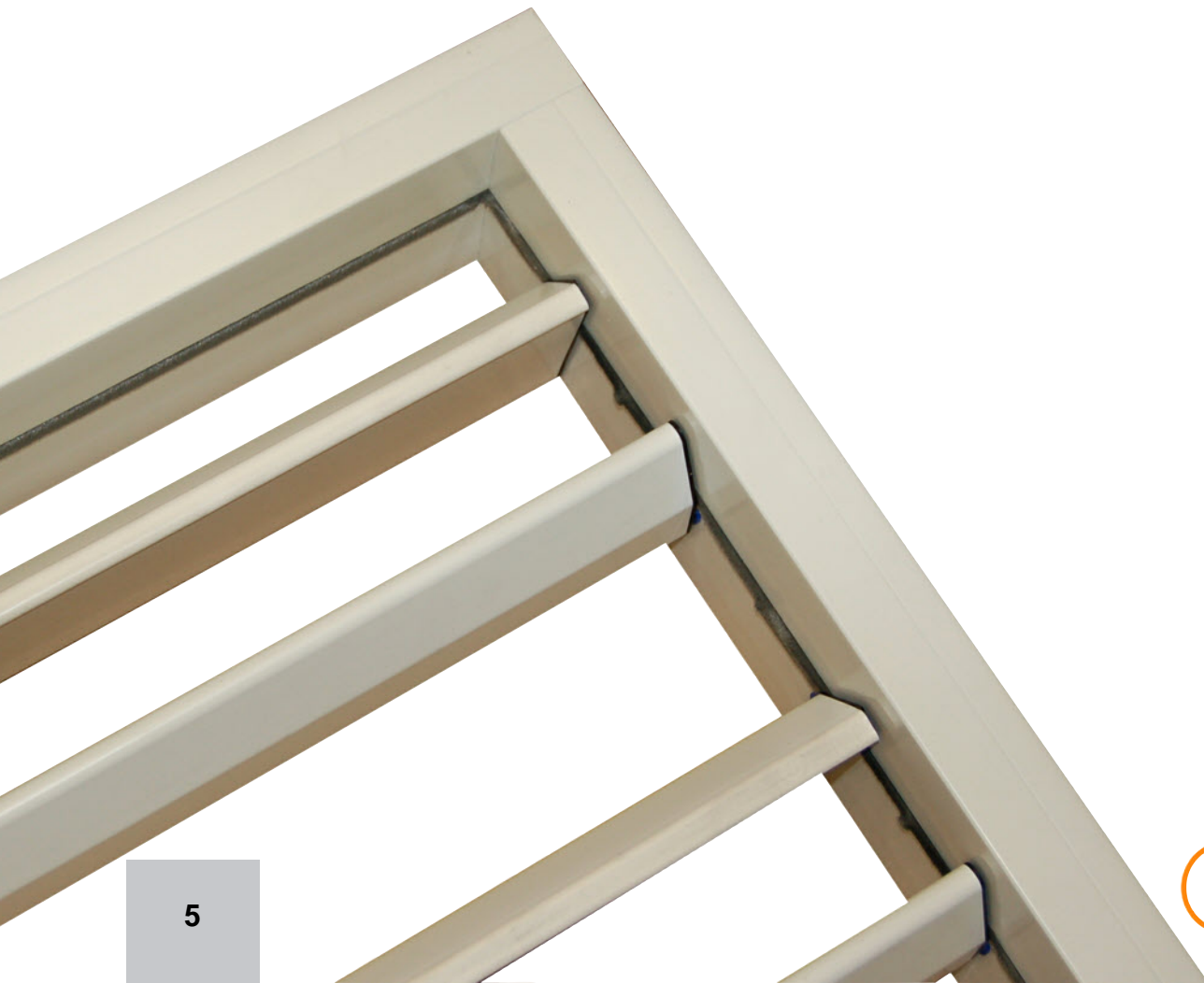
Excellent thermal insulation

With a theoretical U value of less than 1 W/m², uPVC volume control dampers lose far less heat through conduction than aluminium or steel equivalents

Options specified

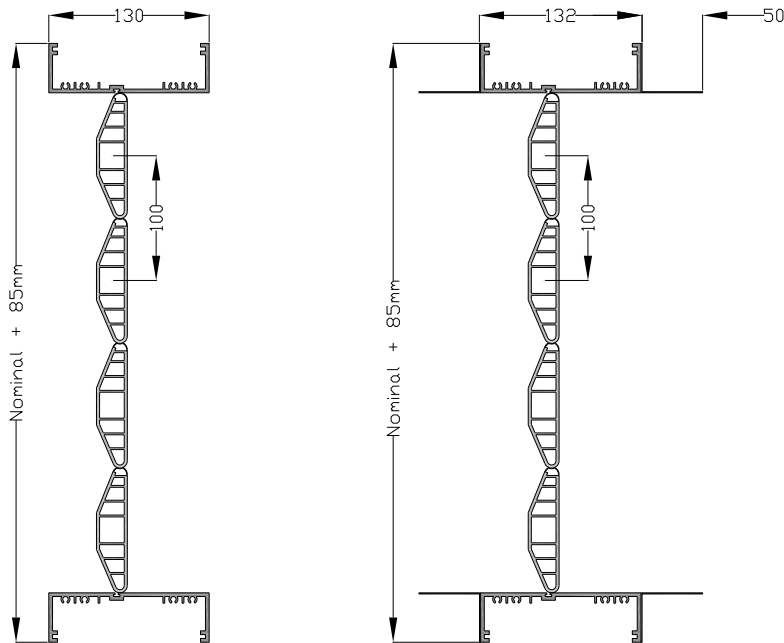
Belimo modulating actuators factory fitted

The use of Belimo SM series modulating actuators allows dampers to be set fully open, fully closed or anywhere in between, for maximum adjustability and assurance of comfort.



Abbeywood high school

uPVC volume control dampers



Ultra high shut off

In independent tests, large format uPVC volume control dampers yielded leakage results normally only achieved by dedicated shut off dampers.

The VCD sent for testing had a nominal size of 1000mm x 806mm, the large size tantamount to our confidence in the damper.

With even 10Pa rarely being exceeded in natural ventilation situations, it is clear how uPVC volume control dampers can enhance the efficiency of your new natural ventilation system.

Leakage (1000mm x 806mm uPVC VCD)			
	m ³ /s	m ³ /hr/m	m ³ /hr/m ²
10Pa	0	0	0
25Pa	0.000857	0.29	3.83
50Pa	0.002850	0.97	12.73
75Pa	0.004975	1.69	22.22
100Pa	0.005398	1.83	24.11
150Pa	0.007909	2.68	35.33

No cold bridge

Close a steel or aluminium volume control damper, and you will go on losing heat, not through airflow but conduction of heat from one side to the other.

HVC large format uPVC volume control dampers have a theoretical U value of **0.973W/m²K** when closed, atleast 40 times better than a steel damper and 250 times better than an aluminium unit.

Of course this can help to cut heating bills, and reduces the carbon footprint of any building using them.

Thermal conductivity of steel and aluminium*		
	Steel	Aluminium
W/mK	40	250
Btu	23.12	144.46

*Figures sourced from www.engineeringtoolbox.com



Incorporating



Grilles & diffusers

Louvres

Fire / Fire smoke dampers

Volume control dampers



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